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**Datasheet for the decision
of 5 March 2024**

Case Number: T 3039/19 - 3.4.03

Application Number: 16153967.1

Publication Number: 3054405

IPC: G06Q20/02

Language of the proceedings: EN

Title of invention:

TEMPORARY CONSENSUS SUBNETWORK IN A DISTRIBUTED NETWORK FOR
PAYMENT PROCESSING

Applicant:

Ripple Labs Inc.

Headword:

Relevant legal provisions:

EPC Art. 52(1), 56
RPBA Art. 12(4) (2007)

Keyword:

Inventive step - main request (no)
Auxiliary requests - admitted (no) - should have been filed in
first instance proceedings



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Case Number: T 3039/19 - 3.4.03

D E C I S I O N
of Technical Board of Appeal 3.4.03
of 5 March 2024

Appellant: Ripple Labs Inc.
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Decision under appeal: Decision of the Examining Division of the
European Patent Office posted on 19 June 2019
refusing European patent application No.
16153967.1 pursuant to Article 97(2) EPC.

Composition of the Board:

Chairman T. Häusser
Members: M. Papastefanou
D. Prietzel-Funk

Summary of Facts and Submissions

- I. The appeal is against the decision of the examining division refusing European patent application No. 16 153 967 on the ground of lack of inventive step (Articles 52(1) and 56 EPC).
- II. At the end of the oral proceedings before the board, the appellant (applicant) requested that the decision under appeal be set aside and that a patent be granted on the basis of the main request or one of the first to third auxiliary requests, all filed with the statement setting out the grounds of appeal.
- III. Reference is made to the following document, cited also in the decision under appeal:
- D4: Pedro Franco: "*Understanding Bitcoin: Cryptography, Engineering and Economics*", 24 November 2014, Wiley, XP055393688, ISBN: 978-1-119-01916-9, Ch01-Ch02, Ch05-Ch07, Ch12-Ch13.
- IV. Claim 1 of the **main request** is worded as follows:

*A method for making a payment transaction between
a payor having an associated payor computer with a
ledger storage for the payor and
a payee having an associated payee computer with a
ledger storage for the payee
in a consensus payment network,
the consensus payment network having a plurality of
nodes,
each node comprising a respective computer with
ledger storage and relying on consensus
determinations,*

*the method comprising the steps of:
providing an initiator for making the payment
transaction between the payor and the payee, the
initiator being either the payor, the payee, or an
intermediary having an associated intermediary
computer;*

characterized by

*the respective initiator computer creating a temporary
payment transaction consensus subnetwork comprising a
set of validation nodes acceptable to both the payor
and the payee, the set of validation nodes comprising
fewer than all of said plurality of nodes in the
payment network, wherein a majority of the validation
nodes in the set of validation nodes are on both a list
of validation nodes provided by the payor computer and
a list of validation nodes provided by the payee
computer; and*

*the respective initiator computer processing the
payment transaction via the consensus payment network
from the payor to the payee based on a determination of
consensus by the consensus subnetwork, wherein each of
the validation nodes of the consensus subnetwork
communicates a decision on the validity of the payment
transaction to each of the other validation nodes of
the consensus subnetwork, wherein the communicated
decisions are verifiable using HMAC or public key
cryptography.*

- V. Claim 1 of the **first auxiliary request** has the same wording as claim 1 of the main request with the following amendments (highlighting of the changes by the board):

*each node comprising a respective computer with
ledger storage and relying on consensus
determinations for assigning validity to a
transaction,*

wherein a majority or all of the validation nodes in the set of validation nodes are on both a list of validation nodes provided by the payor computer and a list of validation nodes provided by the payee computer,
wherein each of the validation nodes of the consensus subnetwork communicates ~~a~~ its decision on the validity of the payment transaction to each of the other validation nodes of the consensus subnetwork.

VI. Compared to claim 1 of the first auxiliary request, claim 1 of the **second auxiliary request** includes the following amendments (highlighting of the changes by the board):

the respective initiator computer processing the payment transaction via the consensus payment network from the payor to the payee based on a determination of consensus by the consensus subnetwork by submitting the payment transaction for validation to each validation node of the consensus subnetwork, wherein each of the validation nodes of the consensus subnetwork validates the payment transaction, conditionally applies it to its ledger if the payment transaction appears to be valid and communicates its decision ...

VII. Claim 1 of the **third auxiliary request** has the same wording as claim 1 of the second auxiliary request with the following additional feature at the end:

wherein upon processing the transaction, validation nodes of the temporary payment transaction consensus subnetwork broadcast all ledger changes to remaining node computers in the payment network, wherein a later disagreement of remaining node

computers with the payment transaction of the temporary payment transaction consensus subnetwork is ignored.

VIII. Regarding the main request, the appellant argued essentially that the features distinguishing claim 1 from the prior art were technical as they represented a technical solution to a technical problem. Moreover, they were inventive since the prior art contained no disclosure or suggestion of creating a temporary validation subnetwork with only a part of the validation nodes of the network.

Regarding the admittance of the auxiliary requests the appellant argued that in view of the way the discussion was conducted during the examination procedure, there was no point in submitting them before the examining division. It filed those requests in appeal with the hope to discuss some aspects which were not discussed with the examining division.

Reasons for the Decision

1. The invention
- 1.1 The claimed invention relates to carrying out payment transactions in a consensus payment network. In consensus payment networks there is no central authority validating the transactions.
- 1.2 Such a network comprises a number of validation nodes which carry copies of the ledger in which the validated transactions are registered. When a transaction is initiated, the nodes receive the transaction information and, using information from the ledger,

"reach a decision" on whether or not the transaction is valid and should be added to the ledger. When all (or most of) the validation nodes "decide" that the transaction is valid, i.e. there is consensus, the transaction is validated and entered in the ledger.

- 1.3 According to the application, the validation of the transaction by such a network may take a considerable amount of time. In certain cases, such as an electronic payment at a store, waiting for e.g. 10 minutes for the network to reach consensus and the transaction to be validated is unacceptable.

The claimed invention defines a transaction validation method according to which not all the validation nodes of the network take part in the validation process of a payment transaction. For each transaction, a temporary "subnetwork" is created comprising fewer than all the validation nodes of the network. These nodes are selected based on lists of trusted nodes each party (payor - payee) submits to the network. By having the transaction validated by fewer nodes, the procedure takes less time and the validation speed increases.

2. Main request

- 2.1 The main request corresponds to the sole request underlying the impugned decision with a correction of a typing error in dependent claim 7.

- 2.2 It was common ground that the starting point for the skilled person was a commonly known consensus payment network. An example of such a network is the "Ripple" network which is described in the present application but also in document D4. In a transaction validation process, such known networks use all the validation

nodes of the network. In other words, the transaction has to be verified by all the validation nodes of the network in order for it to be validated.

It was also common ground that the claimed method differed from the prior art in that the transaction validation process was carried out using only a part of the nodes of the network (a "subnetwork"). In addition, the nodes that were selected to be part of that subnetwork were determined based on lists of trusted nodes provided by the transacting parties (payor and payee).

It was not contested that a validation process according to the claimed method was faster than a validation process carried out by the known consensus network.

2.3 The main argument of the appellant was that the features distinguishing claim 1 from D4 (or the known "Ripple" network) were technical because they solved the technical problem of increasing the transaction validation speed and/or reduce the power consumption of the consensus payment network and that the examining division had erred in considering them to be non-technical constraints to be given to the skilled person for implementation.

2.4 The board agrees that by using fewer validation nodes the time needed for a consensus to be reached (and a transaction to be validated) decreases (or the validation speed increases), as do the computational effort and the power consumption of the network as a whole.

The board is however of the opinion that the features distinguishing claim 1 from the prior art do not

represent a technical solution to a technical problem.

It is considered to belong to the insights in the realm of the business person that the operation of consensus networks like the one of the present application is based on the number of nodes which validate a transaction. As the application also mentions, consensus networks validate a transaction when the majority of nodes validate this transaction (i.e. there is a consensus that the transaction is valid). As the number of validation nodes increases, the probability decreases that a fraudulent transaction, which has been introduced by one node, is validated by the whole network. In other words, a higher number of validation nodes increases the reliability of the consensus payment network in that it increases the probability that only valid transactions get validated by the network (see also paragraph [0041] of the published application).

It follows that by decreasing the number of nodes participating in the validation process, the probability of a fraudulent transaction getting validated increases. The claimed method thus may be increasing validation speed (and decreasing power consumption) by not using all the validation nodes of the network, but decreases the reliability of the consensus payment network.

The board cannot see such a trade-off as a technical solution to a technical problem. Rather, it is part of the considerations of the business person.

- 2.5 The appellant further pointed out that the nodes included in the subnetwork were selected on the basis of lists of trusted nodes provided by the payor and the

payee. Hence, for the transacting parties the reliability of the validation process was sufficient. Moreover, the transacting parties had the control of who (i.e. which node(s)) validated their transaction. There was thus no decrease in the reliability of the validation process for the transacting parties.

Therefore, there was no trade-off between speed and reliability of the validation process but only a faster transaction validation process.

2.6 The board does not find this argument persuasive.

To start with, the invoked considerations belong again to the realm of the business person.

Moreover, regarding the parties' lists of trusted nodes, the application states that each transacting party has a list of trusted nodes, but this trust is subjective, without any further details (see paragraph [0014] of the published application). Some examples mention that nodes belonging to large, known entities (e.g. banks) may be more trusted on the basis of their reputation than others which may be unknown, and that a payor or a payee tends to trust more nodes belonging to entities in their own country than nodes belonging to other countries (see paragraph [0042]).

It seems thus that there are no objective criteria regarding the determination of which nodes are considered trusted nodes by each party. Neither is there an objective determination of "how trusted" each node can be. The board thus takes the view that it is not objectively possible to ascertain that a transaction validation process by only a certain selection of validation nodes in a subnetwork

(according to the parties' respective lists) is as reliable as a validation process carried out by the whole network.

Hence, even if the transacting parties might be satisfied of the reliability of a validation process carried out by a subnetwork (based on which nodes are included in the subnetwork), the board's view is that on an objective basis, fewer validation nodes would always carry out a less reliable validation process.

The objective technical problem is therefore merely the implementation of the desired business scheme, i.e. a consensus network in which the transaction validation process is carried out using only the nodes of a subnetwork, which are selected based on lists of trusted nodes provided by the transacting parties.

The implementation of the scheme does not pose any technical difficulty to the skilled person which would thus arrive at the claimed subject-matter without exercising any inventive skills.

2.7 Even if the appellant's formulation of the objective technical problem were accepted and the question of reliability were left aside and it were assumed that the validation result remained reliable independent of the number of validation nodes, the board's view is that the proposed solution to the technical problem would be obvious for the skilled person.

As stated before, the starting point for the skilled person is a known consensus network consisting of a number of validation nodes, which requires a certain time to validate a transaction (by all the validation nodes of the network) and consumes a certain amount of

power to do it. In the board's opinion, it would be obvious for the skilled person which is trying to increase the validation speed and/or decrease power consumption that by using a consensus network with fewer validation nodes (a "subnetwork"), a validation result would be reached faster by consuming less power. Such a conclusion would be based only on the common general knowledge of the technically skilled person (a computer programmer), as it is considered straightforward that smaller validation networks (with fewer nodes) are faster and consume less power.

Hence, even if the appellant's arguments were to be followed, the board's conclusion would not be different.

2.8 In a different line of arguments, the appellant argued that in the validation network of claimed validation process, the selection of which validation nodes were included in the transaction validation process was dependent on the (type of) transaction to be validated. It was evident, that in a transaction involving the purchase of a car, for example, the parties would be prepared to wait more time for it to be validated than they would be for a transaction involving the purchase of a bar of chocolate. The transacting parties would, for example, accept a faster validation process, carried out by a few validation nodes when the amount of money involved was relatively small. On the contrary, they might want to include more validation nodes in the validation process of a transaction where a relatively large amount of money is involved.

Hence, the subnetwork was created on the basis of the transaction to be validated and this made it more flexible with respect to the known validation networks

where all the nodes were included in every validation process. There was no hint in the prior art that the validation network could become more flexible in this way and so claim 1 of the main request was inventive.

- 2.8.1 The board does not follow this argument of the appellant. The board notes that the application does not disclose or suggest any selection of validation nodes for a subnetwork based on the type of the transaction to be validated or the amount of money involved. It rather describes - and claims - that each transacting party has its own list of trusted nodes, and there is no mention of e.g. the parties having different lists for different types of transactions.
- 2.8.2 The appellant argued that even if a payor could be involved in all types of transactions (e.g. it could purchase a car and a bar of chocolate), a payee was normally a vendor and their list of trusted nodes would be based on the type of goods/services they sold as the same vendor would not be selling, e.g., both cars and bars of chocolate.
- 2.8.3 The board does not accept this argument of the appellant as the application does not mention any relevant criteria for trusting a node that may be related to the amount of money involved in the transactions to be validated. As mentioned above (see point 2.6 above) the criteria for a node to be considered trusted by a transacting party are subjective and have nothing to do with the type of transactions to be validated or the amount of money involved.
- 2.9 In view of the above, the board concludes, in agreement with the examining division, that the subject-matter of

claim 1 of the main request does not involve an inventive step (Articles 52(1) and 56 EPC).

3. Auxiliary requests

3.1 The appellant filed three auxiliary requests with the statement setting out the grounds of appeal. None of these requests was filed during the first-instance examination proceedings, even though the examining division had raised the objection of lack of inventive step from the beginning of the examination proceedings. In fact, the same objection was already raised in the European Search Opinion. The appellant (then applicant), although it filed several amended sets of claims during the examination proceedings, did not file any of the auxiliary requests filed with the statement setting out the grounds of appeal. Not even during the oral proceedings any auxiliary requests were filed, although the examining division had concluded that the claims on file were not inventive.

3.2 The board is of the opinion that the appellant could and should have filed these auxiliary requests during the examination proceedings, since it was aware of the examining division's objections from the beginning.

The admittance of those auxiliary requests under Article 12(4) RPBA 2007 (which applies here according to Article 25(2) RPBA 2020) was discussed with the appellant.

3.3 The appellant argued that the board's interpretation of Article 12(4) RPBA 2007 was overly strict, as theoretically "everything could have been filed" before the examining division. In view of the way the discussion was carried out in the first instance

examination proceedings, filing these requests before the examining division would have served no purpose ("wäre nicht zielführend gewesen"), especially in view of procedural efficiency.

Auxiliary request 1 was only a corrected version of the main request, which the examining division had found not to be allowable at the oral proceedings, so there was no point in filing it at that point. Auxiliary requests 2 and 3 were based on combinations of the independent claim of the main request with dependent claims, which the examining division had also considered to be not allowable. There was no point in filing them, either.

By including features of those dependent claims in the respective independent claim of auxiliary requests 2 and 3 there was now a chance to discuss them with the board.

Moreover, the appellant argued that it had the intention to discuss the technicality of the claimed subject-matter (on the basis of the requests then on file), but the examining division had made up its mind and there was no point in filing any other auxiliary requests.

- 3.4 The board is not convinced by the appellant's arguments which are based on its subjective impression of the examination procedure and the way it was handled by the examining division and not on any objective criteria. The board cannot see - and the appellant has not mentioned - any error in the examining division's handling of the procedure. In particular, the appellant was not presented with any surprising last-minute objections by the examining division and was given

sufficient opportunity to present arguments and amended requests.

- 3.4.1 Although Article 12(4) RPBA 2007 refers to "requests which could have been presented ... in the first instance proceedings", the boards have normally looked into the circumstances of each case in order to assess whether it would be justified to expect that the applicant would have filed such requests during the first instance procedure. Hence, although from a formal point of view there may always be the possibility to file auxiliary requests during the first instance proceedings, the boards have consistently looked beyond such a simple assertion in order to reach a fair decision regarding the admittance of requests filed in appeal for the first time under Article 12(4) RPBA 2007.

In the present case, as described above (see point 3.1), the discussion during the examination procedure related to an objection of lack of inventive step, which had been raised during the search phase and persisted during the examination phase. The appellant (then applicant) filed amended requests during the examination procedure in an effort to overcome this objection, without success, as it turned out.

In the board's view, if the appellant was of the opinion that the three auxiliary requests filed with the statement setting out the grounds of appeal for the first time included amendments which would have overcome the examining division's objection which ultimately led to the refusal of the application, it should have filed them before the examining division and not wait until the appeal stage.

3.4.2 Following from the above, the board holds the first to third auxiliary requests filed with the statement setting out the grounds of appeal inadmissible under Article 12(4) RPBA 2007.

4. Since there is no admissible and allowable request on file, the appeal cannot succeed.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:



S. Sánchez Chiquero

T. Häusser

Decision electronically authenticated